NEW MEXICO
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Phone (505) 476-6000 Fax (505) 476-6030
www.nmenv.state.nm.us

SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

DAVE MARTIN
Secretary

BUTCH TONGATE
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

April 13, 2012

Colonel John Kubinec
Base Commander
377 ABW/CC
2000Wyoming Blvd. SE
Kirtland AFB, NM 87117-5606

John Pike
Director, Environmental Management Services
377 MSG
2050 Wyoming Blvd. SE, Suite 116
Kirtland AFB, NM 87117-5270

RE: REQUIREMENT FOR CHARACTERIZATION PLAN CONDITIONAL APPROVAL: ADDITIONAL GROUNDWATER MONITORING WELLS (GWM), ADDENDUM TO GROUNDWATER INVESTIGATION WORK PLAN (GIWP) MARCH 2011, BULK FUELS FACILITTY SPILL, SOLID WASTE MANAGEMENT UNITS ST-106 AND SS-111, KIRTLAND AIR FORCE BASE, NEW MEXICO, APRIL 2012
KIRTLAND AIR FORCE BASE, EPA ID# NM9570024423
HWB-KAFB-10-019

Dear Col. Kubinec and Mr. Pike:

The New Mexico Environment Department (NMED) has reviewed the U.S. Air Force's (Permittee) *Additional Groundwater Monitoring Wells (GWM), Addendum to Groundwater Investigation Work Plan (GIWP), March 2011, Bulk Fuels Facility Spill, Solid Waste Management Units ST-106 and SS-111, Kirtland Air Force Base, New Mexico* (here after referred to as the Work Plan), dated April 2, 2012. The Work Plan discusses the proposed installation of three additional groundwater monitoring wells to be installed in the network for the Bulk Fuels Facility, Solid Waste Management Units ST-106 and SS-111. The NMED approves the Work Plan subject to the conditions discussed below. Furthermore, NMED has determined that the scope and rate of characterization proposed in the Work Plan is inadequate to fully characterize the Bulk Fuels Facility Spill within a reasonable time period. Thus, NMED is requiring the Permittee to submit an additional work plan with the goal of completing characterization by November 2012. This additional work is addressed in detail in the later part of this letter.

Conditions for Approval of Work Plan

NMED finds that a single well at each location is insufficient to characterize the vertical extent of the leading edge of the ethylene dibromide (EDB) plume, especially in light of the fact that groundwater samples collected from the two well clusters nearest to the leading edge of the plume contained EDB concentrations above the Maximum Contaminant Level (MCL) of 0.050 µg/L in both the third and fourth quarters of 2011. Of particular note, the concentrations of EDB exceeded the MCL in the shallow, intermediate, and deep wells at each of the two well clusters. Furthermore, pumping in the nearby production wells is expected to induce a downward-directed vertical gradient in groundwater in the vicinity of the production wells. Therefore, a single well screened across the water table at each of the proposed three locations is insufficient for site characterization.

NMED requires three wells to be constructed at each of the three locations, for a total of nine wells to be completed under the Work Plan. The shallow wells at each location are to be screened as described in the Work Plan, with no more than 15 feet of screen situated below the water table. The intermediate wells are to be screened such that the top of their screens begin 15 feet below the water table. The deep well at each location shall be screened such that the top of its screen is placed 115 feet below the water table. Screens for the intermediate and deep wells are to be no more than 15 feet in length.

The Work Plan calls for geophysical logging of the proposed wells. The logging shall be performed in the deepest well of each cluster. Slug tests must be conducted in all 9 wells, not just the three wells proposed in the Work Plan.

The Permittee must begin installing the nine wells immediately, and complete well installation and development by July 31, 2012.

Requirement for Characterization Plan

It is clear that even after the wells that are the subject of the Work Plan are installed, the coverage of wells at the leading edge of the plume will be insufficient to adequately characterize the contaminant plume as the well clusters will be located with insufficient density to properly assess the concentrations of EDB within the contaminant plume. In other words, the Permittee is required to determine the concentrations of contamination throughout the plume, not just find the leading edge. Although the Permittee and its contractor have disagreed that the average spacing of wells at the leading edge of the plume can be less than that compared to the source area of the plume, the NMED does not share this point of view. Instead, it is the northern part of the EDB plume that represents the most serious threat to Albuquerque's drinking-water supply. The northern part of the EDB plume needs additional characterization that was not addressed in the Work Plan.

In its letter of April 2, 2010, NMED expressed urgency in completing characterization of the contaminant plumes in the vadose zone and saturated zones such that final remedy selection

could begin as soon as possible. Characterization completed to date indicates that the contaminant plumes in both the vadose zone and the groundwater are much more extensive than originally believed, and the volume of fuel released into the environment accordingly much greater than originally believed. The Permittee has been aware of the inadequate characterization of the northern part of the EDB plume since at least December 2011. In more than four months the Permittee's response has been limited to the proposed additional wells of the Work Plan. The importance of installing these additional wells is of utmost importance.

Since the coverage of wells will be inadequate, NMED is directing the Permittee to submit a plan, to include a schedule, to complete characterization of the northern part of the groundwater contamination and in an expedited manner. The plan must include a description of the installation of groundwater monitoring wells at the locations listed in Table 1 of this letter (all coordinates in this table are State Plane Coordinates in feet, NAD83). Three groundwater monitoring wells shall be installed at each of the cluster well locations listed in Table 1.

The screen depths shown in Table 1 are distances (in feet) that the top of the screens shall be set below the water table. Screen lengths for wells shall not exceed 15 feet, with the exception that wells screened across the water table (those with screen depths of zero in Table 1) shall be constructed with no more than 15 feet of screen situated below the water table.

Table 1. Cluster well locations and screen depths relative to the water table.

Location #	Northing	Easting	Screen Depths
1	1479600	1545200	0, 15,115
2	1478500	1545300	0, 15,115
3	1477700	1544350	0, 15,115
4	1477950	1544850	0, 15,115
5	1478200	1545900	0, 15,115
6	1477100	1544350	0, 15,115
7	1477050	1545050	0, 15,115
8	1477600	1545900	0, 15,115

The plan must be submitted to the NMED by no later than May 31, 2012. The schedule in the plan must indicate that all additional groundwater monitoring wells will be completed no later than November 30, 2012.

NMED reserves the right to require additional groundwater monitoring wells or other characterization work as necessary to protect human health and the environment. If you have any questions regarding this matter please contact Mr. William Moats of my staff at (505) 222-9551.

Sincerely,

John E. Kieling
Acting Chief
Hazardous Waste Bureau

cc: J. Davis, NMED HWB
W. Moats, NMED HWB
W. McDonald, NMED HWB
S. Brandwein, NMED HWB
J. Schoeppner, NMED GWQB
S. Reuter, NMED PSTB
B. Gallegos, AEHD
R. Shean, ABCWUA
L. King, EPA-Region 6 (6PD-N)
File: Reading and KAFB 2012